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Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1. (Original) A method for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations in a code division multiple access communication system comprising the steps of:

coding control information using a spread spectrum code unique to control information to form a calling channel signal;

coding each user traffic signal using a spread spectrum code unique to each traffic signal;

adding said calling channel signal and said coded traffic signal using predetermined weighting factors to obtain a composite signal;

modulating said composite signal on a radio frequency carrier to form a radio frequency signal;

transmitting said radio frequency signal to said plurality of said mobile stations;

receiving said radio frequency signal at at least one of said mobile stations:

decoding said received signal in said mobile station to extract said control information wherein said control information is used by said mobile station to determine if said mobile station is being called and to determine a phase of the calling channel signal; and

decoding said radio frequency signal in said mobile station using said phase of the calling channel signal to extract traffic information intended for said mobile station.

2. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said spread spectrum coding is orthogonal block encoding using scrambled Walsh-Hadamard codewords.

3. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said calling channel signal is the largest signal in said

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composite signal.

4. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein specific relative phase of each of the signals within said composite signal alternate 90.degree. when ordered according to signal strength.

5. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said modulation is by quadrature phase shift keying.

6. (Original) A method for transmitting control information and user traffic signals according to claim 1, in which said modulation is by offset quadrature phase shift keying.

7. (Original) A method for transmitting control information and user traffic signals according to claim 1, in which said modulation is by quadrature amplitude modulation.

8. (Original) A method for transmitting control information and user traffic signals according to claim 1, in which said modulation is by offset quadrature amplitude modulation.

9. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said decoding of said radio frequency signal in said mobile station is carried out using a fast Walsh transform computer.

10. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said decoded control signal is extracted from the radio frequency signal prior to decoding traffic information.

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11. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said control information includes information about surrounding base stations.

12. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said control information carries information for a specific group of mobile stations only at predetermined times.

13. (Original) A method for transmitting control information and user traffic signals according to claim 12, wherein said predetermined times depend upon a mobile identification number for each of said mobile stations.

14. (Original) A method for transmitting control information and user traffic signals according to claim 12, wherein said mobile stations reduces processing to conserve power at times other than said predetermined times.

15. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said decoding of said radio frequency signal in said mobile station is performed by a non-coherent RAKE receiver.

16. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said decoding of said radio frequency signals in said mobile station is performed by a coherent RAKE receiver.

17. (Original) A method for transmitting control information and user traffic signals according to claim 16, wherein coefficients for RAKE tap weighting used during traffic signal decoding are derived from correlations calculated during calling channel decoding.

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18. (Original) A method for transmitting control information and user traffic signals according to claim 1, wherein said mobile stations receive more than one base station signal on the same frequency.

19. (Original) A method for transmitting control information and user traffic signals according to claim 18, wherein said mobile stations process calling channel signals for more than one base station.

20. (Original) A method for transmitting control information and user traffic signals according to claim 18, wherein said mobile stations process traffic signals for more than one base station.

21. (Original) A method for transmitting control information and user traffic signals according to claim 19, wherein said mobile stations use relative calling channel signal strengths determined by decoding different base station signals to ascertain the best base station to communicate with.

22. (Original) A method for transmitting control information and user traffic signals according to claim 18, wherein each of said mobile stations reports signal strengths determined by decoding different base station signals to a base station transmitting traffic for that mobile station.

23. (Original) A method for transmitting control information and user traffic signals according to claim 22, wherein a base station is selected to transmit traffic to said mobile station based upon said reports of signal strength.

24. (Original) An apparatus for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations in a code division multiple access communication system, comprising:

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first coding means for coding control information using a spread spectrum code unique to control information to form a calling channel signal;

a second coding means for coding each user traffic signal using a spread spectrum code unique to each traffic signal;

summation means for adding said calling channel signal and said coded traffic signal using predetermined weighting factors to obtain a composite signal;

modulation means for modulating said composite signal on a radio frequency carrier to form a radio frequency signal;

transmitting means for transmitting said radio frequency signal to said plurality of said mobile stations;

receiving means for receiving said radio frequency signal at at least one of said mobile stations;

decoding means for decoding said received signal at said mobile station to extract said control information, wherein said control information is used by said mobile station to determine if said mobile station is being called and to determine a phase of the calling channel signal; and

second decoding means for decoding said radio frequency signal in said mobile station using said phase of the calling channel signal to extract traffic information intended for said mobile station.

25. (Original) An apparatus according to claim 24, wherein said second decoding means includes extraction of a control signal from said radio frequency signal prior to decoding of traffic information.

26. (Original) An apparatus according to claim 24, wherein said second decoding means uses a non-coherent RAKE receiver.

27. (Original) An apparatus according to claim 24, wherein said second decoding means uses a coherent RAKE receiver.

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28. (Original) An apparatus according to claim 27, wherein coefficients for RAKE tap weighting used during traffic signal decoding are derived from correlations calculated during calling channel decoding.

29. (Previously Presented) A method for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations in a code division multiple access communication system comprising the steps of:

coding control information using a spread spectrum code unique to control information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period and wherein said control information carries information for a specified group of mobile stations only at predetermined times;

wherein said control information carries information for a specified group of mobile stations only at predetermined times;

coding each user traffic signal using a spread spectrum code unique to each traffic signal;

adding said calling channel signal and said coded traffic signal to obtain a composite signal;

modulating said composite signal on a radio frequency carrier to form a radio frequency signal;

transmitting said radio frequency signal to said plurality of said mobile stations;
receiving said radio frequency signal at at least one of said mobile stations;
decoding said received signal in said mobile station to extract said control information and to determine a phase of the calling channel signal; and
decoding said radio frequency signal in said mobile station using said phase of the calling channel to extract traffic information intended for said mobile station.

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30. (Previously Presented) A method for paging a mobile station in a code division multiple access communication system comprising the steps of:

assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel;

encoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel; and

transmitting a paging message to said mobile station in only said subgroup.

31. (Previously Presented) A method for paging a mobile station in a code division multiple access communication system comprising the steps of:

assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel;

encoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel; and

transmitting a paging message to said mobile terminal station in only said subgroup, wherein a duration of each of said data blocks is equal to a duration of a speech coder's analysis period.

32. (Previously Presented) The method of claim 31, wherein said step of assigning further comprising the step of:

using a mobile identification code associated with said mobile station to determine said assigned subgroup.

33. (Previously Presented) A code division multiple access communication system for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations comprising:

means for coding control information using a spread spectrum code unique to control information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis

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period and wherein said control information means carries information for a specified group of mobile stations only at predetermined times;

means for coding each user traffic signal using a spread spectrum code unique to each traffic signal;

means for adding said calling channel signal and said coded traffic signal to obtain a composite signal;

means for modulating said composite signal on a radio frequency carrier to form a radio frequency signal;

means for transmitting said radio frequency signal to said plurality of said mobile stations;

means for receiving said radio frequency signal at at least one of said mobile stations;

means for decoding said received signal in said mobile station to extract said control information and to determine a phase of the calling channel signal; and

means for decoding said radio frequency signal in said mobile station using said phase of the calling channel to extract traffic information intended for said mobile station.

34. (Previously Presented) A code division multiple access communication system for paging a mobile station comprising:

means for assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel;

means for encoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel; and

means for transmitting a paging message to said mobile station in only said subgroup.

35. (Previously Presented) A code division multiple access communication system for paging a mobile station comprising:

means for assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel;

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means for encoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel; and
means for transmitting a paging message to said mobile station in only said subgroup, wherein a duration of each of said data blocks is equal to a duration of a speech coder's analysis period.

36. (Previously Presented) The system of claim 35, wherein said means for assigning further comprises means for using a mobile identification code associated with said mobile station to determine said assigned subgroup.

37. (Previously Presented) The method of claim 29, further comprising using said control information to maintain synchronization between the mobile station and the base station.

38. (Previously Presented) The method of claim 31, further comprising receiving said paging message at said mobile station and using said paging message to maintain synchronization between the mobile station and the code division access communication system.

39. (Previously Presented) The system of claim 33, further comprising means for using said control information to maintain synchronization between the mobile station and the base station.

40. (Previously Presented) The system of claim 35, further comprising means for receiving said paging message at said mobile station and using said paging message to maintain synchronization between the mobile station and the code division multiple access communication system.

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41. (Previously Presented) A method according to claim 30, further comprising the steps of:

powering up parts of a receiver in said mobile station during transmission of the subgroup of data blocks and powering down said parts of the receiver at other times;
receiving the subgroup of data blocks at the mobile station;
using the received subgroup of data blocks to synchronize the mobile station with the code division multiple access system; and
detecting the paging methods at the mobile station.

42. (Previously Presented) A code division multiple access communication system according to claim 34, further comprising:

means for powering up part of the receiver in said mobile station during transmission of the subgroup of data blocks and for powering down said parts of the receiver at other times;

means for receiving the subgroup of data blocks at the mobile station;
means for using the received subgroup of data blocks to synchronize the mobile station with the code division multiple access system; and
means for detecting the paging messages at the mobile station.

43. (Previously Presented) A code division multiple access communication system for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations comprising:

a calling channel modulation generator coding control information using a spread spectrum code unique to control information to from a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period and wherein the control information carries information for a specified group of mobile terminals only at predetermined times;

a traffic channel modulation generator coding each user traffic signal using a spread spectrum code unique to each traffic signal;

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a summing network adding the calling channel signal and the coded traffic signals to provide composite signal;

a mixer modulating the composite signal on a radio frequency carrier to form a radio frequency signal;

a transmit power amplifier transmitting the radio frequency signal via an antenna to the plurality of mobile stations;

a radio receiver receiving the radio frequency signal at at least one of the mobile terminal stations;

a correlator decoding the received signal in the at least one mobile terminal station to extract at least one of the control information and traffic information intended for the at least one mobile station, wherein the control information is used to determine a phase of the calling channel signal and the phase of the calling channel signal is used to extract the traffic information.

44. (Previously Presented) A code division multiple access communication system for paging a mobile station assigned to a subgroup of mobile stations in the system, comprising:

a calling channel modulation generator encoding calling information using a spread spectrum code assigned for use with calling information to form a calling channel signal,

wherein a duration of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period; and

wherein paging messages intended for the mobile station are included only in a subgroup of data blocks of the calling channel signal, the subgroup of data blocks being associated with the subgroup of mobile stations.

45. (Previously Presented) A method for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations in a code division multiple access communication system comprising the steps of:

coding control information using a spread spectrum code unique to control

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information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period and wherein said control information carries information for a specified group of mobile stations only at predetermined times;

coding each user traffic signal using a spread spectrum code unique to each traffic signal;

adding said calling channel signal and said coded traffic signal to obtain a composite signal;

modulating said composite signal on a radio frequency carrier to form a radio frequency signal; and

transmitting said radio frequency signal to said plurality of mobile stations with an associated phase as received at ones of the plurality of mobile stations for use by the receiving ones of the plurality of mobile stations in extracting traffic signals intended for the receiving ones of the plurality of mobile stations.

46. (Previously Presented) A method for receiving control information and user traffic signals from a first base station at a mobile station in a code division multiple access communication system comprising the steps of:

receiving a radio frequency signal at said mobile station, the radio frequency signal including control information coded using a spread spectrum code unique to control information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period, wherein said control information carries information for a specified group of mobile stations only at predetermined times and wherein the radio frequency signal further includes a user traffic signal coded using a spread spectrum code unique to each traffic signal, said calling channel signal and said coded traffic signal being combined to provide a composite signal;

decoding said received signal in a said mobile station to extract said control information and to determine a phase of the calling channel signal; and

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decoding said received signal in said mobile station using said phase of the calling channel to extract traffic information intended for said mobile station.

47. (Previously Presented) A code division multiple access communication system for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations comprising:

means for coding control information using a spread spectrum code unique to control information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period and wherein said control information means carries information for a specified group of mobile stations only at predetermined times;

means for coding each user traffic signal using a spread spectrum code unique to each traffic signal;

means for adding said calling channel signal and said coded traffic signal to obtain a composite signal;

means for modulating said composite signal on a radio frequency carrier to form a radio frequency signal; and

means for transmitting said radio frequency signal to said plurality of mobile stations with an associated phase as received at ones of the plurality of mobile stations for use by the receiving ones of the plurality of mobile stations in extracting traffic signals intended for the receiving ones of the plurality of mobile stations.

48. (Previously Presented) A system for receiving control information and user traffic signals from a first base station at a mobile station in a code division multiple access communication system comprising:

means for receiving a radio frequency signal at said mobile station, the radio frequency signal including control information coded using a spread spectrum code unique to control information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech

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coder's analysis period, wherein said control information carries information for a specified group of mobile stations only at predetermined times and wherein the radio frequency signal further includes a user traffic signal coded using a spread spectrum code unique to each traffic signal, said calling channel signal and said coded traffic signal being combined to provide a composite signal;

means for decoding said received signal in a said mobile station to extract said control information and to determine a phase of the calling channel signal; and

means for decoding said received signal in said mobile station using said phase of the calling channel to extract traffic information intended for said mobile station.

49. (Previously Presented) A code division multiple access communication system for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations comprising:

a calling channel modulation generator that is configured to code control information using a spread spectrum code unique to control information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period and wherein the control information carries information for a specified group of mobile stations only at predetermined times;

a traffic channel modulation generator that is configured to code each user traffic signal using a spread spectrum code unique to each traffic signal;

a summing network that is configured to add the calling channel signal and the coded traffic signals to provide a composite signal;

a mixer that is configured to modulate the composite signal on a radio frequency carrier to form a radio frequency signal; and

a transmit power amplifier that is configured to transmit the radio frequency signal via an antenna to the plurality of mobile stations with an associated phase as received at ones of the plurality of mobile stations for use by the receiving ones of the plurality of mobile stations in extracting traffic signals intended for the receiving ones of the plurality of mobile stations.

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50. (Previously Presented) A code division multiple access mobile station that receives control information and user traffic signals from a first base station comprising:
a radio receiver receiving a radio frequency signal at the mobile station, the radio frequency signal including control information coded using a spread spectrum code unique to control information to form a calling channel signal, wherein a duration of each of a succession of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period, wherein the control information carries information for a specified group of mobile stations only at predetermined times and wherein the radio frequency signal further includes a user traffic signal coded using a spread spectrum code unique to each traffic signal, said calling channel signal and said coded traffic signal being combined to provide a composite signal; and

a correlator that is configured to decode the received signal to extract at least one of control information and traffic information intended for the mobile station, wherein the control information is used to determine a phase of the calling channel signal and the phase of the calling channel signal is used to extract the traffic information.

51. (Previously Presented) A method for receiving a paging message at a code division multiple access mobile station, comprising:
determining a subgroup of data blocks associated with the mobile station, the subgroup of data blocks to be received on a calling channel;
receiving a paging message at said mobile station in said determined subgroup of data blocks and not in other subgroups of data blocks; and
decoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel.

52. (Previously Presented) A code division multiple access mobile station comprising:
means for determining a subgroup of data blocks associated with the mobile station, the subgroup of data blocks to be received on a calling channel;

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means for receiving a paging message at said mobile station in said determined subgroup of data blocks and not in other subgroups of data blocks; and

means for decoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel.

53. (Previously Presented) A code division multiple access mobile station, comprising:

a control processor that is configured to determine at said mobile station a subgroup of data blocks associated with the mobile station, the subgroup of data blocks to be received on a calling channel signal;

a calling channel demodulator that is configured to decode calling information using a spread spectrum code assigned for use with calling information to demodulate the calling channel signal,

wherein a duration of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period, and

wherein paging messages intended for the mobile station are included only in the determined subgroup of the calling channel signal associated with the mobile station.

54. (Previously Presented) The method of Claim 30 further comprising:

determining at said mobile station a subgroup of data blocks associated with the mobile station, the subgroup of data blocks to be received on a calling channel;

receiving a paging message at said mobile station in said determined subgroup of data blocks and not in other subgroups of data blocks; and

decoding said subgroup of data blocks at said mobile station using a spread spectrum code assigned to said calling channel.

55. (Previously Presented) The system of Claim 34 further comprising:

means for determining at said mobile station a subgroup of data blocks associated with the mobile station, the subgroup of data blocks to be received on a calling channel;

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means for receiving a paging message at said mobile station in said determined subgroup of data blocks and not in other subgroups of data blocks; and
means for decoding said subgroup of data blocks at said mobile station using a spread spectrum code assigned to said calling channel.

56. (Previously Presented) The system of Claim 44 further comprising:
a control processor in at least one of the subgroup of mobile station that is configured to determine at said at least one of the subgroup of mobile stations the subgroup of data blocks associated with the at least one of the mobile stations, the subgroup of data blocks to be received on a calling channel signal;

a calling channel demodulator in the at least one of the subgroup of mobile stations that is configured to decode calling information using a spread spectrum code assigned for use with calling information to demodulate the calling channel signal,

wherein a duration of data blocks in the calling channel signal is equal to a duration of a speech coder's analysis period, and

wherein paging messages intended for the at least one of the subgroup of mobile stations are included only in the determined subgroup of the calling channel signal associated with the at least one of the subgroup of mobile station.